

## Governance mechanisms and total relationship value: the interaction effect of information sharing

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**Governance mechanisms and total relationship value: The interaction effect of information sharing**

**Abstract**

**Purpose:** The objectives of this study are to examine how contractual and relational governance mechanisms influence total value created in a buyer-supplier relationship and to investigate how supplier's information sharing and information sharing asymmetry between two exchange parties differentially moderate these associations.

**Design/methodology/approach:** The study is conducted with a sample of 110 buyer-supplier matched dyads in various industries in Vietnam.

**Findings:** This study confirms that contractual governance and relational governance have curvilinear effects on total relationship value. Governance mechanisms have distinct interactions with supplier's information sharing and information sharing asymmetry to influence total relationship value.

**Research limitations/implications:** Future study could expand the sample to various countries to investigate the role of cultural factors in the effects of contractual and relational governance.

**Practical implications:** The study draws implications for supplying managers about how to govern a relationship with a buying firm with which they are sharing information. It also provides implications about how to use contractual and relational governance to control the effects of supplier's information sharing, information sharing asymmetry, on total relationship value.

**Originality/value:** The study extends the information sharing literature by looking into the effect of supplier's information sharing on both parties' relationship value. It contributes to the governance literature by investigating curvilinear effects of contractual and relational governance on relationship performance.

**Keywords:**

*Information sharing, Contractual governance, Relational governance, Relationship value*

**Article Classification:**

*Research Paper*

## 1. Introduction

In order to mitigate any hazard coming from buyer-supplier relationships, transaction cost reasoning (e.g., Heide et al., 2014, Williamson, 2010) suggests that business relationship parties will rely on specific governance mechanisms, such as monitoring with formal contracts (Gulati and Singh, 1998, Williamson, 1975), and monitoring with relational norms (Vázquez-Casielles et al., 2013, Bercovitz et al., 2006). Formal contracts, which include formal rules, terms, procedures and penalties to stipulate the rights and obligations of both parties, can efficiently reduce risk and uncertainty in business-to-business relationships (Weber and Mayer, 2011, Poppo and Zenger, 2002, Williamson, 1975). In contrast, relational governance using established trust and norms can encourage greater investment from both buyers and suppliers and discourage opportunistic behavior harmful to relationships (Dyer and Singh, 1998, Kumar et al., 1995b). Prior research, however, has found limitations associated with both contractual governance (e.g. high cost, low flexibility) and relational governance (e.g. opportunistic behavior, misplaced trust) (Cavusgil et al., 2004, Lui and Ngo, 2004, Das and Teng, 1998, Williamson, 1979). Considering these limitations, we argue that the effects of contractual and relational governance are not merely linear, but rather lie within a more complex linkage. Although Huang et al. (2014) was the first study to find a curvilinear direct effect of contractual governance on performance of buyer-supplier cooperation, there is still a dearth of studies examining the double-sided effects of contractual and relational governance. What remains unexplored in the governance literature is the double-sided effects of formal and informal governance mechanisms, and the interaction effects of these mechanisms with supplier's relational behaviors such as information sharing to influence the relationship performance. It is also important to understand how excessive formal and informal governance can abet negative behaviors in buyer-supplier relationships.

Information sharing has attracted numerous studies in the literature on business relationships (Fang, 2008, Wu, 2008, Zhou and Benton, 2007). Supplier's information sharing refers to the extent to which a supplying firm exchanges information with a specific buying firm during their relationship (Fang, 2008, Wu, 2008). In an intensely competitive business environment, an increasing number of businesses desire information about the market, about downstream buyer needs and preferences or even propriety information to be shared by their suppliers in order to develop new products or improve their quality, and increase relationship performance (Cheung et al., 2010, Zhou and Benton, 2007). What remains unknown is how relationship value for *both* the buyer and the supplier changes as the supplier increasingly shares information with the buyer. Furthermore, the extant literature also does not address the consequences of the asymmetry of information sharing between the supplier and the buyer. The majority of previous studies mostly focus on the effects of information sharing by one party, buyer or supplier (Fang et al., 2008, Zhou and Benton, 2007). Very few studies examine information sharing by both parties, but do not compare the asymmetry of information sharing between them (Lee and Ha, 2018, Cheung et al., 2010). Although symmetric allocation is viewed as a desirable condition in business relationships, Turnbull and Valla (2013) propose that buyers and suppliers can participate in information sharing at different levels, which raises the need for studies on the downside effects of such asymmetry in information sharing.

In dealing with the above limitations of the extant literature, our first objective in this study is to examine whether contractual and relational governance have non-linear associations with total relationship value which is defined as the total value perceived by both the buyer and the supplier in their relationship. Second, the current study aims to compare buyer and supplier involvement in sharing information and examine how supplier's information sharing and



information sharing asymmetry between the exchange parties can affect total relationship value.

The third objective is to examine how contractual and relational governance mechanisms differentially interact with supplier's information sharing and information sharing asymmetry to influence relationship performance.

The study aims at making several theoretical and managerial contributions. From the theoretical perspective, the study makes considerable contribution to the governance literature. The extant literature focuses only on either the dark side or bright side of governance mechanisms. This study will be among the first to investigate the double-sided effects of contractual and relational governance in business relationships. Furthermore, this study extends the literature on information sharing when it departs from previous studies by taking into consideration the asymmetry in information sharing. It also contributes to the literature by examining the effects of information sharing on the value performance of both parties. From a managerial perspective, our study will draw implications for supplying managers about how to govern a relationship with a buying firm with which they are sharing information. It offers advice to managers in supplying organizations about whether they should devote more effort to information sharing than the buyer, and how any resulting asymmetry in information sharing might affect relationship performance in the dyad. Last, this study will also provide managers with implications about how contractual and relational governance should be carefully adopted as they can differentially interact with supplier's information sharing and information sharing asymmetry to affect relationship value creation.

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2  
3 **2. Theory and hypotheses**  
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5 *2.1. The main effects of contractual and relational governance*  
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8 As marketing has changed its priorities from a transaction orientation to a relationship  
9 orientation, transaction cost analysis has been applied as the theoretical foundation for many  
10 studies of interfirm relationships and relationship management (Anderson and Weitz, 1992,  
11 Heide and John, 1992, Dwyer et al., 1987). When specific asset investments into a transaction  
12 have changed into relationship building activities, these investments also become a fertile  
13 breeding ground for opportunism by partners. Transaction cost theory assumes that some  
14 decision makers are inherently opportunistic and may act in their own self-interests, which  
15 challenges firms to discover a priori who is opportunistic and when to build up protective  
16 institutional mechanisms (Barney, 1990). Opportunism is of particular concern to an exchange  
17 when one party invests specific assets into the relationship with the other party of the exchange  
18 (Williamson, 1991). Because such investments have little value outside of the specific  
19 transaction, the investing party becomes vulnerable to exploitation and needs to defend these  
20 assets against the opportunistic behavior of its partner (Williamson, 1985, Williamson, 1975).  
21 Opportunism, whenever it is present, is always found to have a negative influence on  
22 performance (Wathne and Heide, 2000, Rindfleisch and Heide, 1997).  
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42 According to transaction cost reasoning, business relationship parties will rely on two  
43 specific governance mechanisms to guard relationships from negative behaviors: contractual  
44 (Gulati and Singh, 1998, Williamson, 1975), and relational (Heide et al., 2014, Bercovitz et al.,  
45 2006). In the present study, contractual governance refers to the degree to which the formal  
46 contracts, rules, terms, procedures and penalties are implemented to stipulate the rights and  
47 obligations of both parties, which can prevent opportunistic behavior and reduce risk and  
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uncertainty in business-to-business exchanges (Weber and Mayer, 2011, Poppo and Zenger, 2002). A parallel literature has also highlighted the extent to which relationship governance involves trust (Cao and Lumineau, 2015, Ferguson et al., 2005). Trust can help to deter partner opportunism, encourage greater investments from both buyers and suppliers and positively influence relational effectiveness in buyer-supplier dyads (Fletcher-Chen et al., 2017, Wang et al., 2013, Liu et al., 2009). Therefore, contractual and relational governance can foster value creation in the buyer-supplier relationships or increase total relationship value.

However, when firms rely too much on contractual and relational governance in relationships with buyers or suppliers, they will backfire. Although formal and informal governance have a long history as mechanisms for controlling business relationships, several studies have pointed out the dark side of these two forms of governance. First, it is costly and nearly impossible to obtain complete contracts (Cavusgil et al., 2004, Hart, 1988, Williamson, 1979). Therefore, too much dependence on contractual governance will cause some financial burden on buyer-supplier relationships. Second, too strict adherence to a legal contract will reduce the necessary flexibility in an exchange (Macneil (1980), and “create irreconcilable conflict and other forms of dysfunctional behavior” (Lusch and Brown, 1996, p.19), which can significantly reduce relationship value creation. Like formal governance, informal governance also has some disadvantages. When firms rely too much on relational governance to control the relationships with buyers or suppliers, they put themselves at much higher risks of opportunism (Lui and Ngo, 2004, Das and Teng, 1998).

**H1.** Contractual governance has an inverted U-shaped association with total relationship value

**H2.** Relational governance has an inverted U-shaped association with total relationship value

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2.2. *The main effects of supplier’s information sharing and information sharing asymmetry*

Previous studies on business relationships have mostly focused on the perspective of either the buyer or the supplier, without considering the differences between the two parties. In the context of business relationships, misalignment, gap and asymmetry have been used to refer to the difference between the buyer and the supplier and many scholars share the idea that symmetry is a desirable condition (Corsaro and Snehota, 2011). However, studies of the differences in practices between buyers and suppliers still remain scarce despite the call for more research from a dyadic perspective into buyers’ and suppliers’ practices such as information sharing (Corsaro and Snehota, 2011). Information sharing is defined as the extent to which a firm involves in exchanging information with a specific partner during their relationship (Fang, 2008, Wu, 2008). Turnbull and Valla (2013) note that, in most countries, buyers seem more willing to share information than do suppliers, and perfect information sharing is unlikely to occur. These arguments depict a possibility for information sharing asymmetry or the difference in the extent of information sharing between buyers and suppliers. However, very few studies have considered the degree of information sharing asymmetry and the extent to which such asymmetry can hinder or facilitate relationship value creation.

Traditional marketing mostly highlights the flow of information from downstream customers to buying firms and to their supplying firms (Jia et al., 2014). Supplying firms have access to the information about downstream customers mostly through their buying firms (Kumar et al., 2016, Fang, 2008). However, with the rapid development of information technology and the emergence of multistage marketing, many supplying firms nowadays aim at a direct approach to downstream customers to collect information about final product markets (Kleinaltenkamp et al., 2012). They possess not only information to improve their own operation but also other

information helpful to support their direct buying firms. Therefore, a supplying firm's collection and sharing of market information with its buyer will help the buyer to improve their performance and, in turn, increase the buyer's perceived value from the relationship (Cheung et al., 2010). Bound by relational norms, such a buyer will reciprocate the supplier's information sharing by increasing its purchases from this supplier, or raising their investments into the dyadic relationship (Hoppner and Griffith, 2011). In turn, the supplier will perceive greater relationship value from these reciprocal activities. Thus, we propose that supplier's information sharing is positively associated with the total relationship value perceived by the buyer and the supplier.

However, a supplier's greater involvement in information sharing than its buyer constitutes a difference in investments in relational behavior between the two parties. According to transaction cost theory, a company's idiosyncratic investments in collecting and sharing information in a partner can create vulnerability to opportunistic behavior by the partner and make relationship exit more difficult for the investing party (Chen et al., 2017, Anderson and Jap, 2005, Williamson, 1975). Therefore, when a supplier invests more in the relationship than does its buyer, the asymmetry will be likely to result in opportunistic behavior by the party with less investment, that is, the buyer. In particular, as the supplier increasingly shares with the buyer either market information, information about downstream customers, or other proprietary information, the buyer becomes more likely than the supplier to behave opportunistically by exploiting this information for their own benefit at the expense of the supplier, creating no new net value in the relationship. In addition, the opportunistic behavior of either party also badly influences the quality and performance of their relationship (Lee, 1998), increasing costs for both the exploiter and exploited. Therefore, it is highly likely that the costs the opportunistic behavior can impose on both parties in a relationship outweigh the benefits it can bring to the self-interest

seeking party, thus decreasing total relationship value. As a result, total relationship value for both parties will decrease when the supplier shares more information than the buyer does. Thus, we propose the following hypotheses:

**H3a:** There is a positive association between the supplier's information sharing and total relationship value.

**H3b:** If the supplier shares more information with the buyer than the buyer does, the asymmetry will negatively influence total relationship value.

*2.3. The interaction between information sharing and governance mechanisms*

Contractual governance uses binding legal agreements that specify the obligations and roles of both parties (Weber and Mayer, 2011, Poppo and Zenger, 2002); therefore, many firms can choose to use formal contracts to protect their shared information with buyers. Contracts also help to increase the quantity of knowledge transfer between buyers and suppliers (Liu et al., 2017). However, the literature does not show a consistent result about the effectiveness of contractual governance (Yang et al., 2017). When the supplier uses contractual governance to control the buyer's use of shared information, the buyer will be less likely to reciprocate for several of the following reasons. First, as contractual governance includes strict legal terms for both parties to follow during the exchange, contracts can become a barrier to the relationship as the parties have to strictly adhere to them in order to deal with future contingencies (Cavusgil et al., 2004). In turn, flexibility in the relationship will decrease and, therefore, the two parties will be less likely to create value from the shared information. Second, contracts can never be complete and cover all contingencies that may happen in the future (Williamson, 1979). If buyers and suppliers strictly depend on contracts to govern the relationship, there will be behavioral uncertainty when any problem with the shared information not covered in contracts occurs in the

future. Such behavioral uncertainty will cause the value from the supplier's information sharing to become less clear. Furthermore, when buyers and suppliers depend on contracts to regulate their behaviors towards shared information, they may incur greater costs in writing up a detailed contract and frequently updating contracts under new circumstances. Therefore, with increasing costs for contractual governance, buyers and suppliers will perceive less relationship value from the shared information. Thus, we propose the following hypothesis:

**H4a:** Supplier's information sharing and contractual governance have a negative interaction effect on total relationship value.

With legal terms and procedures clearly stated in contracts, each party knows their rights and obligations in the relationships and how they will be penalized when they violate the terms. Therefore, when a supplier shares relatively more information with the buyer and uses formal contracts as a tool to govern how the buyer will use their shared information, such contractual governance will help the supplier reduce the buyer's opportunism behavior (Weber and Mayer, 2011, Poppo and Zenger, 2002). As contractual governance increases from low to moderate levels, it curbs the buyer's opportunism behavior and weakens the negative effect of information sharing asymmetry on total relationship value. The interaction effect of information sharing asymmetry and contractual governance on total relationship value will be greatest at a moderate level of contractual governance. However, when a party uses contractual governance from moderate to excessive levels to regulate a relationship, the relationship's dark side will gradually emerge. At excessive levels of contractual governance, the buyer will be more likely to perceive that the supplier has low trust in them, and will be more likely to behave opportunistically when the supplier shares more information than they do (Poppo and Zenger, 2002). Thus, excessive



levels of contractual governance will exacerbate the negative effect of information sharing asymmetry on total relationship value. Thus, we arrive at the following hypothesis:

**H4b:** Contractual governance interacts with information sharing asymmetry in such a way that the negative effect of information sharing asymmetry on total relationship value weakens under low to moderate levels of contractual governance and strengthens under moderate to high levels of contractual governance.

Previous studies have argued that relational governance using trust can act as a mechanism to govern embedded relationships (Dyer and Singh, 1998, Kumar et al., 1995b), and can induce joint efforts by relationship parties (Tsai and Ghoshal, 1998). Therefore, when the supplier has low trust in the buyer, the supplier will tend to be more protective towards their shared information and will be more reluctant to share special and important information with the buyer. With information of lower quality, the buyer will perceive less value and be less likely to reciprocate to the supplier, which, in turn, will create less value in the relationship. When the supplier has low to moderate trust in the buyer, the information they share with the buyer will increase in terms of both quantity and credibility (Liu et al., 2017). Therefore, the buyer will be more likely to reciprocate the supplier's information sharing such that both parties will perceive more value from the relationship, increasing total relationship value.

However, when the supplier places moderate to excessive trust in the buyer, opportunistic behavior by the buyer may arise (Lui and Ngo, 2004, Das and Teng, 1998). Therefore, the buyer will be more likely to take advantage of the information shared by the supplier to extract more value at the expense of the supplier, thus weakening the positive association between supplier's information sharing and total relationship value. Thus, we propose the following hypothesis:

**H5a:** Relational governance interacts with supplier's information sharing in such a way that the positive effect of supplier's information sharing on total relationship value strengthens under low to moderate levels of relational governance and weakens under moderate to high levels of relational governance.

As a parallel governance mechanism, trust is a useful instrument to control opportunism and nourish cooperation in buyer-supplier relationships (Wang et al., 2013). However, a firm may be likely to take advantage of partner's trust to seek self-interest. Under increasing levels of supplier's trust in the buyer, if the supplier shares more information than does the buyer, the buyer will be relatively more likely to be opportunistic towards the shared information. Therefore, in a relationship that prioritizes relational governance, when the supplier shares more information than does the buyer, the asymmetry between two parties will be more likely to reduce total perceived relationship value. Thus, we arrive at the following hypothesis:

**H5b:** Information sharing asymmetry and relational governance have a negative interaction effect on total relationship value.

### 3. Method

#### 3.1. Measure development

We adapted all construct measures in this study from tested scales from previous research and measured them with multi-item 7-point Likert scales, if not otherwise indicated.

*Supplier's information sharing and information sharing asymmetry* Supplier's information sharing was measured by three items adapted from Fang (2008). Information sharing asymmetry was measured based on how much greater involvement a supplier has in information sharing than does their buyer. We measured information sharing asymmetry by measuring information sharing by a supplier and a buyer with the scale adapted from Fang (2008), and then calculating

the difference across items as follows: Information sharing asymmetry =  $\text{Information\_sharing}_{\text{Supplier}} - \text{Information\_sharing}_{\text{Buyer}}$  (Homburg and Jensen, 2007).

*Total relationship value* Total relationship value was measured based on relationship value perceived by both the buyer and the supplier. We measured relationship value using a scale adapted from Geiger et al. (2012). We measured total relationship value as the sum across items of relationship value perceived by each party in a buyer-supplier relationship:  $\text{TotalRV} = \text{RV}_{\text{Buyer}} + \text{RV}_{\text{Supplier}}$ .

The approach to calculate total relationship value and information sharing asymmetry is consistent with previous research that has used dyadic difference scores (Fang and Zou, 2010, Homburg and Jensen, 2007, Kumar et al., 1995b). This method is based on the dimensional approach, which has been long used to measure interdependence and dependence asymmetry in the marketing literature (Fang and Zou, 2010, Homburg and Jensen, 2007, Kim and Hsieh, 2003). According to Kim and Hsieh (2003), the addition method is the dimensional approach that was used to measure the magnitude of total interdependence (Kumar et al., 1995b, Gundlach and Cadotte, 1994) and the subtraction method is the dimensional approach that was used to measure the asymmetry of relative dependence (Jap and Ganesan, 2000, Gundlach and Cadotte, 1994). The dimensional approach adopted to measure information sharing asymmetry in this study presumes that buyer's information sharing and supplier's information sharing capture *the same phenomenon except for the locus of information sharing behavior*, and therefore they can be subtracted to characterize information sharing asymmetry (Kim and Hsieh, 2003). Similarly, the dimensional approach adopted to measure total relationship value in this study presumes that buyer's relationship value and supplier's relationship value capture *the same phenomenon except for the locus of relationship value*, and therefore they can be added to characterize total

relationship value. Supplier's relationship value and buyer's relationship value can be different in terms of the magnitude and the relationship value elements (Corsaro and Snehota, 2010). However, this study is only interested in the sum in the magnitude between buyer's relationship value and supplier's relationship value.

*Contractual governance and relational governance* Contractual governance was measured with three items adapted from the scale by Ferguson et al. (2005). Relational governance was assessed through the proxy of trust which was measured with the scale adapted from Walter et al. (2003) which was built upon prior work of Kumar et al. (1995b).

*Control variables* To exclude the possibility that total relationship value is a function of total dependence between two parties, rather than our independent variables, we included three control variable: total annual sales of the buyer and supplier ( $\text{Total sales} = \text{Sales}_{\text{Buyer}} + \text{Sales}_{\text{Supplier}}$ ), the sum of the supplier's share in the buyer's total purchase and the buyer's share in the supplier's total sales ( $\text{Total share} = \text{Share}_{\text{Buyer}} + \text{Share}_{\text{Supplier}}$ ) and total dependence between the buyer and supplier ( $\text{Total dependence} = \text{Dependence}_{\text{Buyer}} + \text{Dependence}_{\text{Supplier}}$ ). On a seven-point scale (1=*strongly disagree*, 7=*strongly agree*), we measured dependence using the following item: "We do not have a good alternative to buyer A/supplier X in our trading area" (Jap and Ganesan, 2000). Furthermore, we included the natural logarithm of relationship length as another control variable (Verhoef et al., 2002). Last, as the supplier's relationship marketing programs targeted at the buyer could have an influence on total relationship value (Luu et al., 2018), in this study, we also included supplier's relationship marketing programs as a control variable for total relationship value.

As the unit of analysis in this study is buyer-supplier dyads, we developed and modified questionnaires to suit the specific position of key informants in dyadic relationships (Jap, 1999).

The pre-test with academic scholars and 30 marketing or procurement managers revealed no major concern about readability, sensitivity, clarity of instructions and questions, or survey length.

3.2. Sample and data collection

Given the conceptual framework proposed in the hypothesis development section, we used survey data collected from matched dyads of buying firms and supplying firms in Vietnam. We ensured data equivalence with surveys translated from English to Vietnamese and backwards by two independent professional certified translation companies. Our targeted respondents were sales, marketing, and procurement managers as well as other sales executives who were directly in charge of dealing with the specified partners.

We followed Wathne and Heide (2004) for the process of collecting dyadic data. First, the market research company randomly selected and contacted 1079 firms from the national directory database of registered businesses. After this stage, we removed 165 firms because of their ineligibility for the study. About 39% (354 out of 914) of the remaining firms eligible for the study expressed interest in this study and agreed to participate in the survey as suppliers or buyers. Second, the market research company sent to these 354 firms questionnaires about their relationships with their chosen partner suppliers/buyers. Of 354 questionnaires in the second stage, we received 125 useable questionnaires from firms that later provided contact information of 125 partners, making an effective response rate of 35.3%. Third, the market research company approached these 125 partner firms, 121 of which participated in the survey, for an overall response rate of 96.8% in the final phase. After deleting eleven questionnaires because of missing data for our constructs of interest and ineligibility of respondents, we used code numbers to match the questionnaires completed by suppliers with those completed by their chosen buyers

to form 110 matched buyer-supplier dyads. Following the method suggested by Armstrong and Overton (1977), we compared the early versus late respondents across key constructs in the model, and found no significant mean differences, assuaging concerns about non-response bias in this study.

Among 110 buyer-supplier dyads in the final sample, 49 dyads (44.5%) have a relationship age of 2-5 years, 47 dyads (42.7%) have a relationship age of 5-10 years, and 14 dyads (12.8%) have a relationship age of over 10 years. The numbers of employees in selling and buying firms range from 10 to over 1000 employees (58.1% of supplying firms and 73.6% of buying firms with 10-300 employees, 27.3% of supplying firms and 14.6% of buying firms with 300-1000 employees, and 14.6% of supplying firms and 11.8% of buying firms with over 1000 employees). The sample of buying and supplying firms includes various industries ranging from packaging and labeling (32.7%), food processing (19.1%), plastics and chemicals (17.3%), electronics manufacturing (11.8%), building material manufacturing (10.9%) to textiles and leather (8.2%).

#### 4. Analysis

##### *4.1. Reliability, validity and descriptive statistics*

The study conducted confirmatory factor analysis (CFA) to validate more thoroughly the measurement model. Appendix 1 reports results of the measurement analysis, including loadings, t-statistics, composite reliabilities (CRs), average variances extracted (AVEs), and fit indices. The fit statistics indicate that the measurement model has a reasonable fit to the data with NNFI, CFI and IFI all exceeding 0.90 ( $\chi^2 = 211.63$ , d.f.=131, RMSEA=0.075) (Gerbing and Anderson, 1992). CFA yielded satisfactory items loadings for all constructs. Although we have two item loadings of less than 0.7 in the measurement model, all latent variables in the measurement

models have CRs exceeding the benchmark level of 0.7 and all items were significant at the one-percent significance level, indicating acceptable reliability (Fornell and Larcker, 1981). With SPSS 24, we used Cronbach's alpha and a rotated Principal Components factor matrix to verify the construct validity of the items. The Cronbach's alpha scores for all constructs were above the Churchill's benchmark for Cronbach's alpha (0.6) (Churchill Jr, 1979). In addition, AVEs for all constructs range from 0.59 to 0.72, which exceed the AVE benchmark of 0.5 suggested by Fornell and Larcker (1981), implying good convergent validity. In addition, Table 1 shows that the square roots of AVEs are greater than all corresponding correlations, providing further evidence of discriminant validity (Fornell and Larcker, 1981).

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Insert Table 1 about here  
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The exploratory factor analysis revealed that the first factor accounted for 24.32% of the 74.23% explained variance, and there was no general factor apparent in the un-rotated factor structure, so common method variance is not a concern in this study (Podsakoff and Organ, 1986). Furthermore, we followed Lindell and Whitney (2001) to employ the marker variable technique with the supplying firm's location (in Northern or Southern areas of Vietnam) as the marker variable. With  $r_M = 0.02$ , the mean change in correlations of the key constructs ( $r_U - r_A$ ), after partialling out the effect of  $r_M$ , was not significant, indicating that the common method bias was not present in this study (Malhotra et al., 2006).



#### 4.2. Results

Because total relationship value perceived by the buyer and supplier can influence the choice of governance mechanisms, our analysis investigated the possibility that relational governance and contractual governance might not be entirely exogenous to the model predicting relationship value gap. We used the two-stage least squares (2SLS) approach in STATA with instrumental variables to control the potential for endogeneity in our model. In the first stage, we found effective instrumental variables which should not be correlated with the error term, but should be correlated with the potentially endogenous independent variables (Wooldridge, 2009). We used environmental uncertainty and relationship length as the instrumental variables for relational governance and contractual governance. On a seven-point scale (1= strongly disagree; 7 = strongly agree), we measured environmental uncertainty using the following item: “End-user needs and preferences change rapidly in our industry”. The results of endogeneity tests using STATA 14’s “ivendog” command imply that endogeneity is not a concern in our study (Durbin-Wu-Hasman chi-squared test:  $\chi^2=0.47$ ,  $p > 0.10$ ; Wu-Hausman F-test:  $F[2,101] = 0.22$ ,  $p > 0.10$ ) (Wooldridge, 2009).

Following the procedure proposed by Cohen et al. (2003), and Jaccard and Turrisi (2003), we tested our hypotheses using ordinary least square-based hierarchical regressions and presented the results in Table 2. To test the main effects on total relationship value, we began by including five control variables in Model 1, and then added relational governance and contractual governance to Model 2. Model 1- the baseline model- is significant when total dependence ( $\beta=0.35$ ,  $p<0.05$ ) and suppliers’ relationship marketing programs ( $\beta=0.62$ ,  $p<0.01$ ) have significant effects on total relationship value while the other control variables, total sales, total share, and relationship length, do not impose significant effects on total relationship value. When

we included relational governance and contractual governance into Model 2, the model improved significantly with R-squared increased by 7%. Including the squared terms of relational governance and contractual governance to Model 3 further increased R-squared by 8%. We found significant main effects for squared terms of both contractual governance ( $\beta = -0.26, p < 0.10$ ) and relational governance ( $\beta = -0.41, p < 0.01$ ). These results provide support for both Hypothesis 1 and Hypothesis 2. When we included supplier's information sharing and information sharing asymmetry into Model 4, we found significant main effects for both supplier's information sharing ( $\beta = 1.01, p < 0.01$ ) and information sharing asymmetry ( $\beta = -1.10, p < 0.01$ ). These results provide strong support for both Hypotheses 3a and 3b.

Insert Table 2 about here

To test for all the interaction effects, we included in the full model the interaction terms of focal constructs (i.e. supplier's information sharing  $\times$  contractual governance; information sharing asymmetry  $\times$  contractual governance; information sharing asymmetry  $\times$  contractual governance<sup>2</sup>; supplier's information sharing  $\times$  relational governance; supplier's information sharing  $\times$  relational governance<sup>2</sup>; information sharing asymmetry  $\times$  relational governance). The results of the full model (Model 5), as shown in Table 2, demonstrated that the interaction term of information sharing asymmetry and squared contractual governance has a significant effect on total relationship value ( $\beta = -0.30, p < 0.10$ ), which is the evidence to support Hypothesis 4b. Hypothesis 4a is not supported since the interaction between supplier's information sharing and contractual governance is not significant in Model 5 ( $\beta = 0.31, p > 0.10$ ). The study also found that relational governance has a linear negative effect on the link between information sharing

asymmetry and total relationship value ( $\beta = -1.04, p < 0.05$ ) and an inverted U-shaped moderating effect on the link between supplier's information sharing and total relationship value ( $\beta = -0.35, p < 0.01$ ). These results are strong evidence to support Hypotheses 5a and 5b. We tested for multicollinearity in all models by examining the maximum variance inflation factor (VIF). Multicollinearity did not appear to pose a problem in all models because all VIFs were well below 10 (Mason and Perreault Jr, 1991).

## 5. Discussion

The key finding from this study suggests that an increase in relational and contractual governance can help create relationship value, but if the relationship relies too much on relational and contractual governance, the two types of governance will decrease relationship value creation. Our study lends support to previous research that suggests a positive effect of governance mechanisms on relationship performance (Weber and Mayer, 2011, Poppo and Zenger, 2002, Kumar et al., 1995a). Most previous studies separately examine the bright side and the dark side of each governance mechanisms. However, our study reveals that the dark side of governance mechanisms only reveals itself when relational governance and contractual governance increase to high levels. This finding is consistent with transaction cost theory as it implies that when buyer and suppliers depend too much on trust (over 4.90 out of 7 in the Likert scale) to govern the relationship, opportunism behavior will emerge (Williamson, 1975). Such behavior deteriorates the relationship and total relationship value as perceived by both parties decreases. Following Aiken and West (1991), we conducted slope analysis to illustrate the relationships between relational governance, contractual governance and total relationship value. As Figure 1 shows, the analysis provided further support for Hypothesis 1 and Hypothesis 2.

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Insert Figure 1 about here  
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In addition to the main effects, the interaction effect between contractual governance and information sharing asymmetry as illustrated by Figure 2a implies that, when contractual governance increases from low to moderate levels, it would diminish the general negative association between information sharing asymmetry and total relationship value. This result is consistent with the governance literature confirming the role of contractual governance in controlling or attenuating opportunistic behavior (Weber and Mayer, 2011, Poppo and Zenger, 2002). However, an excessive application of contractual governance to control the behavior of two relationship parties will become counter-productive as it demonstrates lack of trust, with the buyer becoming more likely to take advantage if they are not involved in sharing information as much as the supplier, in turn, decreasing total relationship value (Poppo and Zenger, 2002). Therefore, moderate to high levels of contractual governance tends to intensify the negative association between information sharing asymmetry and total relationship value.

Like contractual governance, relational governance also plays a significant role in moderating the associations between supplier's information sharing, information sharing asymmetry and total relationship value. According to Figure 2b, low to moderate levels of relational governance which reflect increasing trust and commitment in the relationship, strengthen the positive association between supplier's information sharing and total relationship value. This result may reflect the earlier argument that relational governance is effective in improving relational performance (Liu et al., 2009, Kumar et al., 1995b) by encouraging positive behaviors such as reciprocation. However, when a supplier excessively depends on relational

governance, the buyer will be more likely to take advantage of supplier's information sharing, which deteriorates the relationship and decreases total relationship value. Therefore, moderate to high levels of relational governance weaken the positive association between supplier's information sharing and total relationship value.

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Insert Figure 2 about here  
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This study also emphasizes the dark side of relational governance when Figure 2c illustrates that, under high levels of relational governance, information sharing asymmetry decreases total relationship value more so than under low levels of relational governance. This finding contrasts with the prevailing view in the governance literature that focuses more on the bright side of relational governance (Dyer and Singh, 1998, Kumar et al., 1995b). Our findings confirm that under high levels of supplier's trust in the buyer, when the supplier shares more information than the buyer does, the asymmetry between two parties will induce the buyer's opportunism and reduce total perceived relationship value.

## 6. Implications

### 6.1. Theoretical implications

Our study reveals several important theoretical implications. First, this study contributes to the governance literature by revealing curvilinear effects of contractual and relational governance in business relationships. Furthermore, our study is the first study to examine how contractual and relational governance have double-sided interaction effects with information sharing practices to influence performance. Previous studies have argued the detrimental effects

of these two governance mechanisms (Cavusgil et al., 2004, Lui and Ngo, 2004). However, our study extends the extant governance literature by showing how these detrimental effects only emerge when relational governance is excessively used to control the relationships. Similarly, contractual governance only becomes counter-productive when the supplier's excessive use of formal contracts demonstrates lack of trust and is likely to induce opportunism in the relationship.

Second, this study extends the information sharing literature by considering the effect of supplier's information sharing on relationship value from the perspectives of both parties. Most previous studies have examined the effect of information sharing on either the supplier's or the buyer's performance (Fang et al., 2008, Zhou and Benton, 2007). By considering total relationship value for both the buyer and the supplier, our study helps explain whether supplier's information sharing creates truly new relationship value, rather than simply increases relationship value for one party at the expense of the other. The third theoretical implication of the study is to show that information sharing asymmetry has a negative effect on relationship performance. It is an important contribution to the literature on business relationships, which has called for a dyadic and comparative perspective into buyers' and suppliers' practices (Corsaro and Snehota, 2011).

6.2. Managerial implications

Our study offers insights for managers in B2B contexts. First, the study suggests that managers of supplying firms should consider not only how much information to share but also how much information to share relative to that shared by the buyer. Information shared by the supplier with the buyer can help create new relationship value; however, if a supplier shares increasingly more information than does the buyer, relationship performance could deteriorate as

the two parties perceive less relationship value. Second, to control the hazardous effect of information sharing asymmetry, managers should be aware of the double-sided effects of contractual governance. When suppliers share more information than do buyers, which deteriorates relationship performance, contractual governance can be very useful for managing this negative effect. However, managers should not excessively rely on formal contracts to govern relationships with buying firms since, by doing so, they may signal a lack of trust in buyers, instigating buyers to behave opportunistically by taking advantage of the information shared by the supplier.

Finally, managers should be aware that although relational governance may be effective in encouraging the buyer's reciprocation to the supplier's information sharing, this mechanism could backfire when it is used at excessive levels. A supplier that shares information with a buyer should not rely too much on relational governance to control the relationship; otherwise, the buyer will act opportunistically on the shared information and ultimately damage relationship value creation. If the supplier shares more information than the buyer does, they need to be even more cautious about trusting their partner to the extent that relational governance, instead of controlling opportunism, could backfire and encourage opportunistic behavior, and thus intensify the loss of total relationship value.

## 7. Limitations and conclusion

A longitudinal design could enable researchers to investigate how the performance of governance mechanisms changes over time, and to draw implications for managers about precisely which type of governance mechanisms to use at each phase. In addition, this study is limited to only one country and culture; therefore, further study could expand the sample to



various countries to investigate the role of cultural factors in the effects of contractual and relational governance.

In conclusion, this study confirms the existence of information sharing asymmetry between buyers and suppliers and its negative effect on dyadic relationship performance. Furthermore, this study is the first to examine how contractual and relational governance impose curvilinear interaction effects with supplier's information sharing, information sharing asymmetry to influence dyadic relationship performance. The findings yield important implications for managers about how to use contractual and relational governance with care to avoid their dark sides.

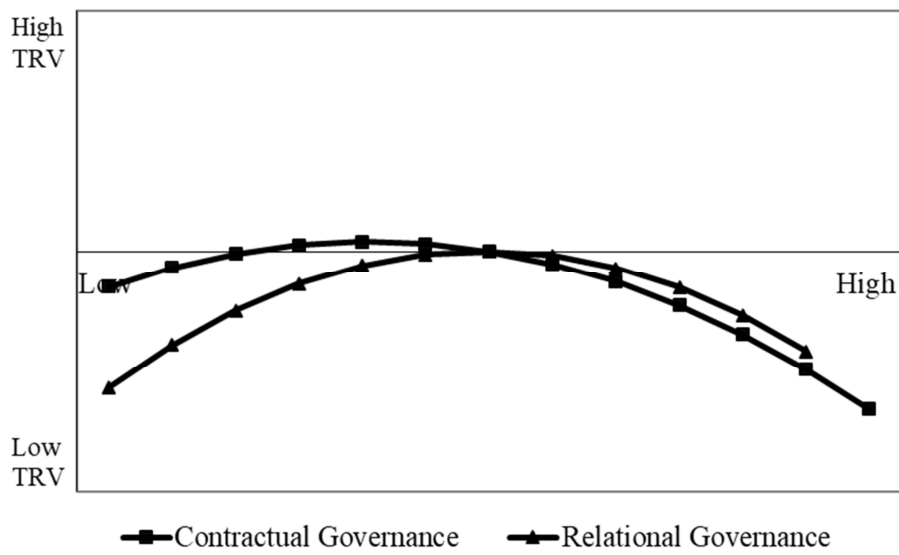
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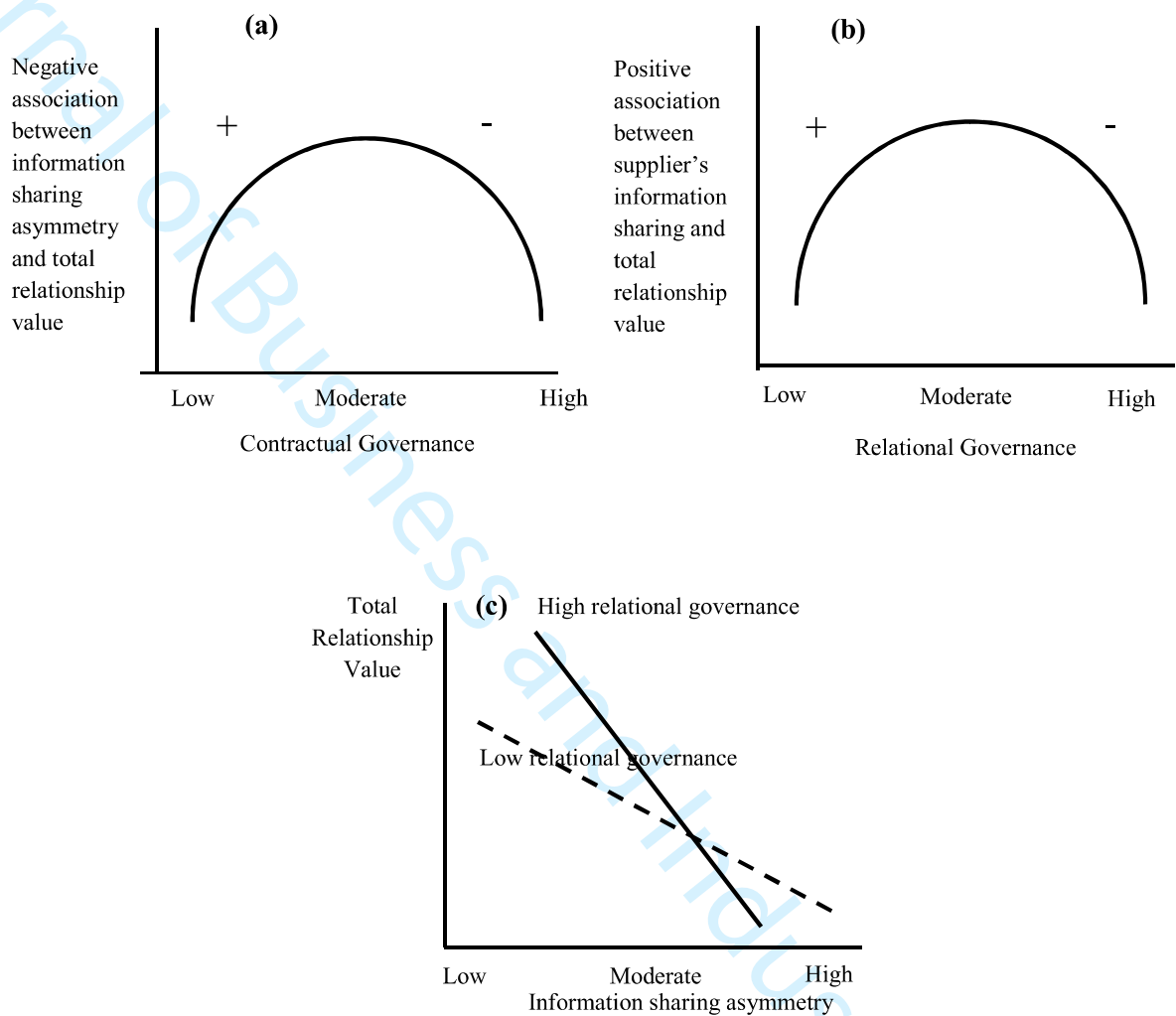
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**Figure 1.** Impacts of contractual governance and relational governance on total relationship value (TRV)





**Figure. 2 a-c** Interaction between contractual, relational governance and supplier's information sharing, information sharing asymmetry



**Table 1**

Means, Standard Deviations, Square roots of AVEs, and Correlations

|                                    | Mean | SD   | 1           | 2           | 3           | 4           | 5           | 6           |
|------------------------------------|------|------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1. Supplier's information sharing  | 4.54 | 1.16 | <b>0.77</b> |             |             |             |             |             |
| 2. Information sharing asymmetry   | 0.16 | 1.69 | 0.67***     | <b>0.81</b> |             |             |             |             |
| 3. Total relationship value        | 9.28 | 1.75 | 0.20**      | -0.18       | <b>0.85</b> |             |             |             |
| 4. Contractual governance          | 1.50 | 1.08 | -0.06       | 0.27***     | -0.23**     | <b>0.84</b> |             |             |
| 5. Relational governance           | 4.96 | 1.24 | 0.17        | 0.24**      | 0.32***     | 0.02        | <b>0.84</b> |             |
| 6. Relationship marketing programs | 4.88 | 1.22 | 0.29***     | 0.25**      | 0.31***     | 0.12        | 0.44***     | <b>0.77</b> |

Notes: \*\*\*,  $p < 0.01$ ; \*\*,  $p < 0.05$ ; Numbers shown in the diagonal denote the square root of the average variance extracted (AVE).

**Table 2**

Regression results: dependent variable – Total relationship value

| Variables   | Model 1 | Model 2             | Model 3             | Model 4             | Model 5            |
|---|---------|---------------------|---------------------|---------------------|--------------------|
| <i>Main effects</i>   |         |                     |                     |                     |                    |
| Contractual governance  |         | -0.54***<br>(-2.88) | -0.35*<br>(-1.70)   | -0.08<br>(-0.41)    | -0.11<br>(-0.53)   |
| Relational governance   |         | -0.08<br>(-0.25)    | -0.04<br>(-0.14)    | 0.32<br>(1.06)      | 0.48<br>(1.53)     |
| <i>H1</i> : Contractual governance <sup>2</sup>                                     |         |                     | -0.26*<br>(-1.77)   | -0.20<br>(-1.42)    | 0.26<br>(1.25)     |
| <i>H2</i> : Relational governance <sup>2</sup>                                      |         |                     | -0.41***<br>(-3.07) | -0.34***<br>(-2.66) | -0.22*<br>(-1.70)  |
| <i>H3a</i> : Supplier's information sharing   |         |                     |                     | 1.01***<br>(3.41)   | 1.22***<br>(3.18)  |
| <i>H3b</i> : Information sharing asymmetry  |         |                     |                     | -1.10***<br>(-3.59) | -0.82**<br>(-1.98) |
| <i>Interaction effects</i>  |         |                     |                     |                     |                    |
| <i>H4a</i> : Supplier's information sharing<br>× Contractual governance             |         |                     |                     |                     | 0.31<br>(0.91)     |
| Information sharing asymmetry ×<br>Contractual governance                           |         |                     |                     |                     | -0.44<br>(-1.13)   |
| <i>H4b</i> : Information sharing asymmetry<br>× Contractual governance <sup>2</sup> |         |                     |                     |                     | -0.30*<br>(-1.67)  |
| Supplier's information sharing ×<br>Relational governance                           |         |                     |                     |                     | 0.41<br>(0.88)     |
| <i>H5a</i> : Supplier's information sharing   |         |                     |                     |                     | -0.35***           |

|    |   |         |         |         |         |
|----|---|---------|---------|---------|---------|
| 1  |   |         |         |         |         |
| 2  |   |         |         |         |         |
| 3  | × Relational governance <sup>2</sup>      |         |         |         | (-2.49) |
| 4  |   |         |         |         |         |
| 5  | <b>H5b:</b> Information sharing asymmetry |         |         |         | -1.04** |
| 6  | × Relational governance                   |         |         |         | (-2.01) |
| 7  |   |         |         |         |         |
| 8  | <b>Control Variables</b>                  |         |         |         |         |
| 9  |   |         |         |         |         |
| 10 | Total sales                               | -0.15   | -0.19   | -0.20   | -0.12   |
| 11 |   | (-0.91) | (-1.19) | (-1.33) | (-0.83) |
| 12 | Total share                               | -0.03   | -0.02   | -0.02   | 0.01    |
| 13 |   | (-0.15) | (-0.15) | (-0.14) | (0.04)  |
| 14 | Total dependence                          | 0.35**  | 0.28*   | 0.24    | 0.09    |
| 15 |   | (2.12)  | (1.76)  | (1.56)  | (0.60)  |
| 16 | Relationship length                       | 0.13    | 0.14    | 0.19    | 0.17    |
| 17 |   | (0.77)  | (0.83)  | (1.19)  | (1.15)  |
| 18 | Supplier's relationship marketing         | 0.62*** | 0.72*** | 0.63*** | 0.52**  |
| 19 | programs                                  | (2.95)  | (3.18)  | (2.87)  | (2.44)  |
| 20 |   |         |         |         |         |
| 21 |   |         |         |         |         |
| 22 | R <sup>2</sup>                            | 0.14    | 0.21    | 0.29    | 0.38    |
| 23 |   |         |         |         | 0.49    |
| 24 | F-value                                   | 3.47*** | 3.83*** | 4.53*** | 5.45*** |
| 25 |   |         |         |         | 5.24*** |

26 Note: \*\*\*,  $p < 0.01$ ; \*\*,  $p < 0.05$ ; \*,  $p < 0.1$   
27 Unstandardized coefficients for mean-centered variables are reported  
28 t-statistics are in parentheses.  
29  
30

31 **APPENDIX 1. Survey items**

|    |   |         |         |
|----|---|---------|---------|
| 32 |   | Loading | t-value |
| 33 |   |         |         |
| 34 | <b>Contractual Governance</b> CR= 0.87, AVE= 0.70                           |         |         |
| 35 |   |         |         |
| 36 |   |         |         |
| 37 | 1. We would find satisfactory solution to disagreement, whether it is based | 0.84    | 21.92   |
| 38 | on the agreement or not <sup>a</sup>  |         |         |
| 39 |   |         |         |
| 40 | 2. Contracts are adapted to firm's specific needs <sup>a</sup>              | 0.86    | 31.45   |
| 41 |   |         |         |
| 42 | 3. Contracts change as a relationship party's business changes <sup>a</sup> | 0.81    | 17.66   |
| 43 |   |         |         |
| 44 | <b>Relational Governance</b> CR=0.91, AVE= 0.71                             |         |         |
| 45 |   |         |         |
| 46 | 1. We can rely on buyer A handling critical information on our firm         | 0.80    | 15.15   |
| 47 | confidentially.   |         |         |
| 48 |   |         |         |
| 49 | 2. When we have an important requirement, we can depend on buyer A's        | 0.84    | 24.01   |
| 50 | support.  |         |         |
| 51 |   |         |         |
| 52 | 3. We are convinced that buyer A performs its tasks professionally.         | 0.87    | 27.77   |
| 53 |   |         |         |
| 54 | 4. We can count on buyer A's promises made to our firm.                     | 0.86    | 28.36   |
| 55 |   |         |         |
| 56 |   |         |         |
| 57 |   |         |         |
| 58 |   |         |         |
| 59 |   |         |         |
| 60 |   |         |         |

**Total Relationship Value** CR=0.89, AVE= 0.72

|   |      |       |
|---|------|-------|
| 1. Compared to our relationship with our largest buyer/supplier, the relationship with buyer A/supplier X has an outstanding value to us.                             | 0.87 | 34.38 |
| 2. Compared to our relationship with our largest buyer/supplier, the benefits of the relationship with buyer A/supplier X far outweigh the disadvantages.             | 0.83 | 17.49 |
| 3. Compared to our relationship with our largest buyer/supplier, the relationship with buyer A/supplier X meets the requirements of my firm in all important aspects. | 0.85 | 27.76 |

**Supplier's Information Sharing** CR=0.80, AVE= 0.59

|  |      |       |
|--|------|-------|
| 1. We actively transfer information gathered from the market to buyer A.   | 0.83 | 16.37 |
| 2. The transfer of information about downstream buyer needs and preferences to buyer A takes place frequently.             | 0.92 | 60.39 |
| 3. We share proprietary information with buyer A if we feel that the information can improve our relationship performance. | 0.47 | 3.02  |

**Information sharing asymmetry** CR=0.84, AVE= 0.65

|   |      |       |
|---|------|-------|
| 1. We actively transfer information gathered from the market to buyer A/supplier X.   | 0.86 | 29.60 |
| 2. The transfer of information about downstream buyer needs and preferences to buyer A/supplier X takes place frequently.             | 0.88 | 34.65 |
| 3. We share proprietary information with buyer A/supplier X if we feel that the information can improve our relationship performance. | 0.65 | 6.04  |

**Relationship Marketing Programs** CR= 0.82, AVE= 0.60

|  |      |       |
|--|------|-------|
| 1. Buyer A often receives special treatment or status from our firm.   | 0.79 | 14.88 |
| 2. Our firm's policies and procedures are often adapted for buyer A    | 0.72 | 9.97  |
| 3. Buyer A frequently gets special pricing or discounts from our firm. | 0.81 | 20.54 |

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Fit statistics:  $\chi^2 = 211.63$ ; d.f.=131; CMIN/df= 1.62; NNFI=0.90; CFI=0.92; IFI=0.92; RMSEA=0.075; GFI=0.84.

<sup>a</sup> We inversely coded this item.